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transit wire, in reversed positions. A comparison of the intervals of the transits in the two positions with the difference of the readings of the hour-circle, gives the correction of the collimation; and if the stars are standard, and the error of the clock known, the correction of the verniers of the hour-circle may be deduced from the same observations. Finally, the squareness of the declination axis to the polar axis* is proved by ascertaining, whether stars which differ in polar distance give the same clock-error. By applying these precepts in order, Mr. Drew shows that he has been able to put his equatoreal into as perfect a state of adjustment as he has means for ascertaining its errors.

Letter from the Rev. Mr. Read respecting the Luminous Bodies seen on Sept. 4, 1850. (See *Monthly Notices*, vol. xi. p. 48.)

"At the suggestion of several eminent members of the Society, I beg again to call your attention to the account of the phenomenon of shooting stars, as seen by myself and my family, in the day time, on the 4th of September, 1850.

"My former communication, which appeared in the *Monthly Notice* of December 1850, was a very brief one, and was only intended to call forth the observations of others, had any such been made; and I omitted then, purposely, to append any attestation of those who witnessed it with me, or to state anything that might be unnecessary, in the hope that more full accounts might be furnished.

"I have, however, now laid before the Council such necessary attestations; and, in addition, offer a few such particulars as seem necessary to render my former communication more complete.

"I have myself been a diligent observer for about twenty-eight years, with instruments of a superior order; but I never witnessed any such appearance before.

"The occasion of my being in the way of seeing so remarkable a phenomenon was, that I had been engaged for several previous days, in succession, in observing with my equatoreal the planet *Mercury*, in order to ascertain how nearly I could trace his approach to the sun; and it was the first instant that I adjusted the instrument that I saw the appearance which I describe.

"I was, at first, filled with surprise, and endeavoured to account for what I saw by supposing that bodies were floating in the atmosphere; but nothing was visible to the naked eye, while the sky was perfectly cloudless and serene: the ceaseless passing of perfect spheres of light in uncountable numbers soon convinced me of the reality of the phenomenon, and I called in haste the various members of my family to witness it, which they did, with me, for many hours.

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* Careful artists frequently make this adjustment themselves, and leave no power of alteration. When the polar axis is vertical, it is easy to make the declination axis horizontal; and when all the parts are sound and the work true, this adjustment is not likely to be altered. The application of a level is seldom convenient for a mounted equatoreal, but this adjustment may be performed by a level.

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"The bodies we observed were all perfectly round, with about the brightness of *Venus*, as seen in the same field of view with them; and their light was white, or with a slight tinge of blue.

"The time they occupied in passing was, as nearly as I could estimate, about one-fourth of a second of time; but they showed no tail of light, such as seen in the case of shooting stars by night.

"They did not cease for a minute, passing often in inconceivable numbers, from the time I first saw them, viz. about half-past 9 A.M. to about half-past 3 P.M. when they became fewer, passed at longer intervals, and then finally ceased.

"There was nothing remarkable at night, that I saw; but having prepared the equatoreal on the following day, which was equally favourable for observation, I observed *one* body pass, precisely similar to the vast number we had observed the day previous.

"They occupied a zone, as nearly as I could judge, about 18° in breadth; and as both *Mercury* and *Venus* were visible by the telescope, I had an opportunity of comparing them with these planets; both of which presented a remarkable difference to the bodies crowding through the field of view.

"I expected that the appearance would be witnessed by many observers, and delayed for some days noticing the circumstance to any other astronomers; but not finding any remark on the subject in the newspapers, I then stated the occurrence to Mr. Hind, of the South Villa Observatory, who thought it of sufficient importance to be communicated to the Society.

"On comparing the phenomenon we witnessed with that observed at Boston, U.S. by Messrs. Olmsted and Palmer, as noticed by Capt. Smyth, in his *Cycle*, vol. i. p. 164, and by Baron Humboldt, *Cosmos*, vol. i. p. 112, there appears an entire similarity between them, with the exception of what we saw occurring in the day, while the phenomenon they witnessed was during the night.

"These gentlemen compared what they saw to flakes of falling snow, and nothing could better describe what we witnessed, allowance being made for the greater brilliancy of daylight, which diminished their intensity of lustre; but being seen upon the deep blue vault of heaven, they presented an appearance of beauty and interest never to be erased from the memory."*

Rule for the Signs of the Terms in the Equation of Equal Altitudes.

By Capt. Shadwell, R.N. F.R.A.S.

"An idea has recently occurred to me with reference to the formulæ for the 'Equation of Equal Altitudes,' which perhaps you may think worthy of notice.

"I have observed that many persons are at fault when called

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* The remark appended by the Editor to Mr. Read's former letter is shown by the present Letter to be erroneous, and must be withdrawn. It is, perhaps, not impossible that even an experienced observer should have been misled by some cause which temporarily affected his vision; but the luminous bodies, seen by Mr. Read, being also seen repeatedly, and for hours, by two members of his own family accustomed to the use of the telescope, and also by a visitor, negative any such explanation.—*Ed. N.*

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